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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,431	04/20/2004	Koichiro Tanaka	0756-7285	2737
31780	7590	05/04/2007		
ERIC ROBINSON PMB 955 21010 SOUTHBANK ST. POTOMAC FALLS, VA 20165			EXAMINER PHAN, JAMES	
			ART UNIT 2872	PAPER NUMBER
			MAIL DATE 05/04/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/827,431

Applicant(s)

TANAKA, KOICHIRO

Examiner

James Phan

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13-23 and 49-74 is/are pending in the application.
- 4a) Of the above claim(s) 13-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 49-74 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/23/06 and 10/26/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election without traverse of Group II, claims 49-74, in the reply filed on 1/19/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 13-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 1/23/06 and 10/26/04 have been considered by the examiner.

***Additional Prior Art Cited***

Mizoguchi et al, in Fig. 14, disclose a galvanometer mirror having shaft (803), wherein the shaft has a supporting bar (where electrode (808) is located) in one end or opposite ends thereof; and each of Yamazaki '307 and Soda et al discloses a beam radiation apparatus having similar structure defined in the present application.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 49-74 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki.

In re claims 49, 51, 53, 56, 58, 60, 62, 65, 67, 69 Yamazaki discloses a beam irradiation apparatus (Figs. 1-8) comprising:

- a laser oscillator (101;501) for emitting an energy beam;
- a specular body (first movable mirror 104;504) for deflecting the energy beam in a main scanning direction;
- a shaft inherently disclosed for rotating or oscillating the mirror so as to deflect the energy beam;
- a stage (107;516); and
- and an f- $\theta$  lens (105;505) between the specular body and the stage on the optical axis of the beam,

wherein the energy beam and the stage and the stage are relatively moved;

wherein the specular body is fixed to the shaft so as to be set on an optical axis of the energy beam, and

wherein the specular body rotates using the shaft as its center.

Yamazaki further discloses that the rotation of the specular body is controlled by a control apparatus (520 in Fig. 8).

In re claims 50, 54, 59, 63, 68 and 71, see paragraph 0023, line 7-9.

In regard to claims 52, 61 and 70, the shaft inherently has a supporting porting bar in one end or in opposite ends thereof because a supporting bar is a necessary component for supporting the shaft which in turn supports the mirror.

In re claims 55, 64 and 72, Yamazaki discloses that a beam can be shaped into an arbitray form by the group of lenses 302, and that the beam shape may be a rectangular having a diameter of about several tens to several hundreds of micrometers (paragraph 0092, lines 6-10). Thus, the rectangular energy beam has been taken as a line or linear energy beam/image; and thus, the lens group (102;502) inherently forms a linear image.

In re claim 57, 66 and 74, Yamazaki discloses that the first movable mirror can be a galvanometer mirror (paragraph 0017).

Claims 49-51, 53, 57-60, 62, 66-69 and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Soda et al.

Soda et al discloses a beam irradiation apparatus comprising:  
a laser oscillator (1) for emitting an energy beam (Lo);  
a specular body (galvanoscanner meter 3Y) for deflecting the energy beam in Y direction;  
a shaft is inherently provided because it is a necessary component for supporting and rotating or oscillating the mirror so as to deflect the energy beam Lo;  
a control apparatus (70);

a stage (30) moves in X and Y directions relative to the deflecting/moving beam Lo;  
and a lens (5) between the specular body and the stage on the optical axis of the beam,  
wherein the specular body is fixed to the shaft so as to be set on an optical axis of the energy beam,  
wherein the specular body rotates using the shaft as its center, and  
wherein the rotation of the specular body is controlled by the control apparatus. See Fig. 1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 52, 61 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soda et al in view of Mizoguchi et al.

Soda et al discloses a beam irradiation apparatus having all the features discussed above; Soda et al does not explicitly disclose a supporting bar in one end or in opposite ends of a shaft of the galvanometer mirror 3Y. However, a beam irradiation apparatus comprising a galvanometer mirror having a shaft which has a supporting bar

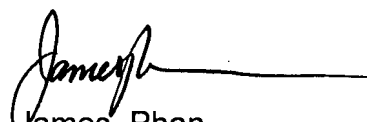
in one end or in opposite ends thereof is well known. Mizoguchi et al discloses a beam irradiation apparatus having a galvanometer mirror. The galvanometer mirror has a shaft (803) having at least a supporting bar (where electrode 803 is located) in one end for supporting the mirror (805) (see Fig. 14 and the accompanying text). Thus, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to provide the galvanometer mirror 3Y disclosed in Soda et al a shaft having a supporting bar as taught in Mizoguchi et al for supporting the mirror.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Phan whose telephone number is (571) 272-2317. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allen B. Stephone can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



James Phan  
Primary Examiner  
Art Unit 2872

JP  
April 29, 2007